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PROPHYLAXIS OF DYSENTERY IN THE USSR

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Application of the new USSR antibiotics, synthomycin and levomycetin, has sharply reduced the number of deaths from dysentery among young children. Clinical and bacteriological methods of diagnosis have also improved. Some problems still remain to be solved, however, as far as practical public health aspects of dysentery are concerned.

It is known that considerable changes in the etiology of this disease have taken place during the past 15 years. While the total number of cases has dropped, certain species of the causative factor were replaced by others. Furthermore, there is no stability among the strains of Flexner bacilli either. While strains of certain types predominated formerly, others are prevalent now. The reasons for the changes mentioned may be the fact that the most effective prophylactic measures were applied against the clinically severe forms of dysentery produced chiefly by Grigor'yev-Shiga bacilli; changes in the nature of the immunity of the population; and transformation of some species of bacteria into others. One may assume that all of these factors were effective to some extent. A correct solution of the problem involved here is important from the standpoint of efficient application of prophylactic vaccines: work done by USSR investigators has established that immunity against dysentery is not only specific as far as species of bacilli are concerned, but also with regard to types of a single species. One cannot expect that immunity to Sonne bacilli will be produced by a vaccine which does not contain this particular component. Likewise, serological types of Flexner bacilli bring about the highest degree of immunity against bacteria of homologous types while they are much less effective in establishing immunity against bacteria of heterologous types.

In order to formulate prophylactic vaccines correctly, one must have a complete knowledge of the species and types of bacteria occurring in various areas of the country. It is therefore an important task of bacteriological laboratories

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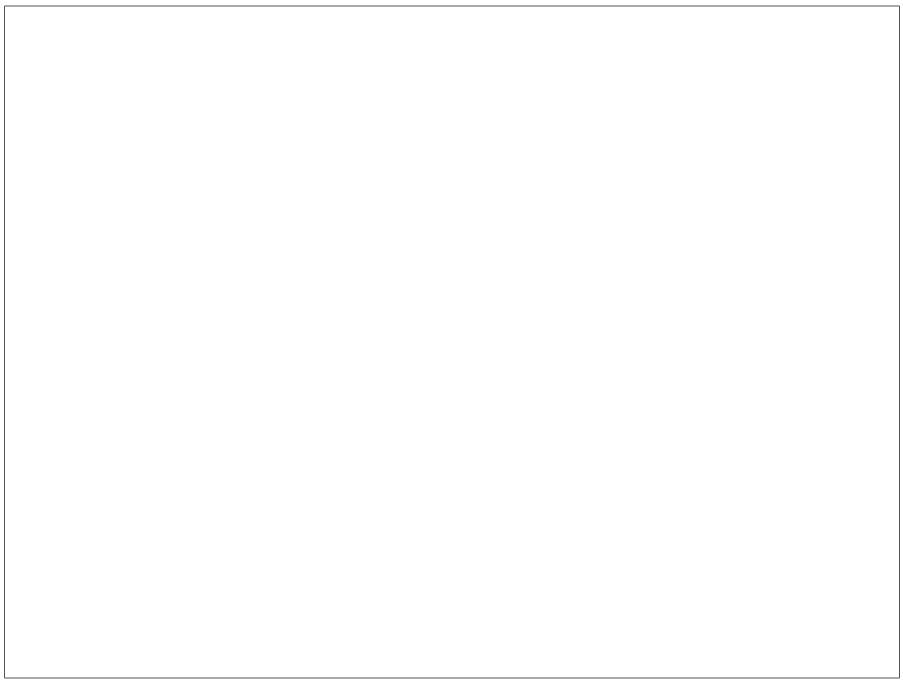
attached to sanitary-epidemiological stations to collect, constantly and systematically, data on this subject. In addition to information on typical strains, data on atypical forms must also be obtained, otherwise no assurance exists that a large number of cases of the disease may not be produced by a hitherto unknown species or type of dysentery bacilli.

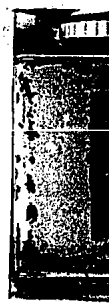
As in any kind of infection, early diagnosis is important. One must therefore further perfect diagnostic methods. This applies not only to bacteriological and serological methods, but to rectoromanoscopy, X-ray investigations of the intestine, and coprocytology as well.

In devising measures for the prophylaxis of dysentery, problems of pathogenesis and of the carrying of bacilli remain most important.



Although synthomycin and levomycetin, which have been synthesized by USSR biochemists, proved very effective in the therapy of acute dysentery, treatment with these antibiotics does not prevent transition of the acute form into the chronic form and subsequently into the condition of carrying bacilli. It is necessary to search for other, still more effective antibiotics. Another way of treating chronic cases and bacillus carriers would be to apply vaccinotherapy. This method was initiated in the USSR by V. A. Chernokhvostov. However, there are as yet no convincing data which prove that vaccinotherapy will free the organism of dysentery bacilli in all cases. The best results probably will be obtained by the combined use of chemotherapeutic agents and methods which increase the protective forces of the organism.

Specific prophylaxis merely plays an auxiliary role and cannot replace the whole complex of measures to be taken in combating this disease. Inoculations, even though carried out on an extensive scale, are inadequate in themselves, mainly because the present-day methods are insufficiently effective. Scientific institutes ought to develop more effective prophylactic vaccines.



An investigation of the use of bacteriophage for the prophylaxis of dysentery carried out by a number of institutes under the general guidance of the Institute of Epidemiology and Microbiology imeni N. F. Gamaleya indicated that this method is insufficiently effective. Its use for this purpose has been discontinued as a result. The question as to whether dysentery bacteriophage can be used for stopping outbreaks of this disease still remains open and ought to be subjected to a final study from this standpoint on the part of epidemiologists.

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